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Presented here, in summary form, are some of the more common arguments in favor of and opposed to the installation of seat belts on large school buses.

Proponents contend that the potential for injuries and fatalities to unrestrained school bus passengers in side impact and rollover collisions, and the carryover effect of seat belt usage later in their lives as K-12 youngsters achieve adulthood, are compelling reasons to require seat belts in large school buses nationwide.

They contend that seat belts offer superior protection in the event of rollovers, or side impact or angle collision (in contrast to head-on or rear-impact).

They further note that approximately one-third of the fatal school bus crashes in the 15 years between 1977 and 1992 were non-frontal crashes that compartmentalization, the favored strategy of opponents, is not designed for.

Meanwhile, opponents contend that compartmentalization in the form of padded seat backs, stronger seat frames and crash barriers, buses designed to absorb crash forces, and other safety factors engineered into the school bus, reduce the value of lap belts and point to real-world crash data that shows the effectiveness of compartmentalization. They worry about the potential use of seat belts as weapons by children against each other inside the school bus, the risks of injury induced by the lap belts themselves in collisions, and the potential risks and limitations of seat belts in overturned buses in lakes and rivers, fire-engulfed buses and other accident scenarios too unpleasant to contemplate, with injured children strapped in, unable to exit the bus.

Moreover, opponents note the domino effect if some students onboard a bus use lap belts and others don't. In the event of a frontal or certain side impact crashes, a child wearing a seat belt would absorb not only his or her own weight, but also the weight of an unbelted child or children in the seat(s) behind, thus doubling the crash force the belted child would have to absorb. Clearly, the many variables and uniqueness of each crash scenario preclude a simple answer.

Here then are the major arguments in favor of and opposed to seat belts on large school buses. The arguments in favor of seat belts are quoted from testimony presented by the National Coalition for School Bus Safety to the NTSB at the hearing into the Palm Springs school bus accident in 1994, the website Seatbelts for School Buses, and personal correspondence to STN from Dr. Arthur L. Yeager of the Physicians for Automotive Safety. Meanwhile, the arguments opposed to seats belts are quoted from the websites and Position Papers of organizations such as New Hampshire School Transportation Association, the National Association of State Directors of Pupil Transportation Services, and others:

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The Pros:

- **1) EDUCATION:** Teaching children to buckle up in automobiles or any other vehicles is a sound strategy to reduce these needless fatalities and injuries. Parents who have been using infant restraints and teaching young children to use seat belts in their automobiles are often dismayed to discover that this education is interrupted on the first day of kindergarten when the children step onto the school bus. "Mommy, there's no seat belt on the school bus," says little Johnny or Mary when they come home. "What shall I do?"
- **2) LITIGATION:** Injured parties have instituted litigation against operators, owners (contractors and districts), dealers and manufactures for failure to provide lap belts.
- **3) CARRYOVER VALUE:** Use of seat belts in school buses will reinforce the educational messages aimed at school-age youngsters and have a carryover effect. Child development experts note the value of repetitive behavior, particularly during the formative years of life. They believe that if children are taught to utilize seat belts during their youth in school buses, the behavior will carry over into other vehicles children ride in, and to increased usage of safety belts when these children become adults and drive their own cars.
- **4) PASSENGER BEHAVIOR:** Proper use of seat belts will improve student behavior on the bus, reduce driver distraction, and may translate into accidents avoided. Seat belts will put children exactly where they should be--in their seats and facing forward. Bus drivers will then be able to give their full attention to where it is needed most--driving the bus safely through the streets.
- **5) PROTECTING CHILDREN IN AN ACCIDENT:** Over the past two decades compartmentalization of children in school buses has consistently failed in side impact and rollover crashes. Significant injuries and fatalities have resulted. Children can be thrown about within the vehicle causing serious injuries or fatalities. Seat belts will keep children in their seats, and reduce the incidence of out-of-position students in the bus. The life-saving and injury-reducing potential of safety belts in a moving vehicle cannot be denied.
- **6) LOW COST:** For a cost estimated to be \$1,500 to \$2,000 per bus, the expense of installing lap belts in school buses is nominal -- estimated to be only about \$1.80 per child per year -- when compared to the life of a single child. Cost effectiveness of this expenditure elsewhere has not been demonstrated. Example: when calculations of classroom time are made per

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hour, \$1.80 per child does not buy much time to educate effectively.

- **7) NO FEDERAL MANDATE:** There are no federal standards for lap belt installation in school buses.
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The Cons:

- **1) FATALITIES AND INJURIES:** Seat belts have no effect in the most common school bus crash scenarios. A search of NHTSA data shows that most school bus related-fatalities and injuries occur to occupants of other vehicles (56%) and pedestrians (30%), with a very small number occurring to student occupants of school buses. Two-thirds of student fatalities occur as youngsters walk to or from the school bus stop while they are pedestrians, or because they are run over by their own school bus.
- **2) NOT AN EFFECTIVE EXPENDITURE:** The safety record of school buses is already so good that the additional \$1,500 to \$2,000 cost per bus to install lap belts could be better spent on other safety measures.
- **3) SAFETY BELT COST UNKNOWN:** While most parties agree the cost to install two-point lap belts is only \$1,500 to \$2,000 per bus on new buses, when multiplied by the 25,000 to 30,000 large buses manufactured in a typical year, the total cost ranges between \$37,500,000 to \$60,000,000 annually. That would amount to between \$450,000,000 to \$900,000,000 to install lapbelts in all large buses during the 12 to 15 years it takes to replace the entire fleet. Regarding the cost to install three-point safety belts, no authoritative source has calculated that cost. That's because three-point safety belts will require significant re-engineering of school bus design to accommodate the devices.
- **4) INEFFECTIVE IN CATASTROPHIC ACCIDENTS:** Seat belts are of little use in the types of catastrophic accidents -- collisions with semi-trucks, trains, etc. -- that produce deaths or serious injuries to passengers onboard the bus. Seat belts may actually prevent rapid egress from a bus in the case of a bus fire or sinking in a river, lake or other large body of water.
- **5) NO GUARANTEE OF USE:** Installing seat belts in a school bus does not mean that students will use them.
- **6) MONITORING:** It is not possible for the bus driver to police the proper fastening and adjustment of seat belts. Improperly

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adjusted belts can prove hazardous. Moreover, if the driver's job includes monitoring seat belt use, that distracts from their driving duties.

- **7) MIXED USE INCREASES RISK:** Failure by any children on the bus to buckle up increases the likelihood of injury to the child or children in the seat ahead. In the event of a frontal collision, unbelted children slide into the seat back ahead, adding their weight to the crash forces borne by the belted children in that seat.

- **8) NO CARRYOVER EFFECT:** A NHTSA study showed negligible carryover effect from school bus seat belts, finding that parent use and enforcement of state seat belt use laws were much more effective tools to encourage children and teenagers to use belts in automobiles. Even very young children are capable of understanding that behavior which is appropriate in one situation may not be appropriate in another.

- **9) NEGATIVE MESSAGE:** Children may receive a negative message if seat belts are available but usage is not enforced.

- **10) NO FEDERAL STANDARDS** There are no federal motor vehicle safety standards covering the installation of seat belts on large school buses. FMVSS 208 requires safety belts in automobiles and trucks, but does not include school buses. *[Webmaster note: In 1995 however, FMVSS 217 was revised to boost the strength of the anchorages which secure school bus seats to the floor. The standard, though not aimed at seat belt installation, requires school bus seats to successfully pass the 5,000 lb. per child or 15,000 lb. per seat pull test.]*

- **11) SEAT BELTS CAUSE INJURIES:** Children have been injured by seat belts used as weapons by other students, and by catching their fingers in the buckles or tripping over loose belts.

- **12) WEIGHT & MASS DIFFERENCE:** By virtue of the fact that school buses weigh eight to ten times more than a typical automobile, in a collision the energy of the impact is absorbed throughout the greater mass of the school bus and less of the crash force affects the school bus passenger.

- **13) SPEED:** It is a well know fact that excess speed kills. That's why school buses typically travel slower and are highly regulated as to how fast they can travel. Speed is a factor in a high percentage of automobile accidents. Thus, the effect of

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speed in highway fatalities in cars vs. buses isn't an equal comparison.

- **14) IMPACT ZONE:** Students are protected by a lower impact zone. School buses are designed so that students sit above the impact zone where automobiles typically strike the school bus. That's why school buses are body-on-chassis construction. The impact zone for passenger cars and vans is much lower.

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